

Grade

5

meapTM
Michigan Educational Assessment Program

Item Descriptors



SCIENCE
FALL 2010

5th

8th

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NOTE: For each item listed throughout this booklet, the first statement is the Michigan Science Curriculum Framework (MSCF) benchmark and the second statement is the descriptor for the item's stem or question. Note that some items only occur in certain forms as indicated by the form numbers in parenthesis after the item numbers (i.e., F1=Form 1, F2=Form 2, etc.).

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Students were instructed to read the directions below silently as the test administrator read them aloud.

PART 1

DIRECTIONS:

In this part, you will answer multiple-choice science questions. Some questions will ask you to read a passage, table, or other science-related information. Use that information with what you know to answer the question.

You must mark all of your answers in Part 1 of your **Answer Document** with a No. 2 pencil. You may underline, highlight, or write in this test booklet to help you, but nothing in this test booklet will be scored. No additional paper may be used.

Mark only one answer for each question. Completely fill in the corresponding circle on your **Answer Document**. If you erase an answer, be sure to erase completely. Remember that if you skip a question in the test booklet, you need to skip the answer space for that question on the **Answer Document**. If you are not sure of an answer, mark your **best** choice.

A sample question is provided for you below.

Sample Multiple-Choice Question:

Pill bugs can often be found underneath rocks and rotting logs. When exposed to light, they immediately try to find a dark place to hide. This reaction by the pill bugs is a result of

- A** migration.
- B** feeding behavior.
- C** energy requirements.
- D** changing environmental conditions.

For this sample question, the correct answer is **D**. Circle **D** is filled in for the sample question on your **Answer Document**.

Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page. If you finish early, you may go back and check your work in Part 1 of the test **ONLY**. Check to make sure that you have answered every question. Do **NOT** look at any other part of the test.

NOTE: The directions for Part 2 are the same as the above instructions.

- 1 L.OL.03.31** Describe the function of the following plant parts: flower, stem, root, and leaf.

Based on the observed characteristics of a plant stem and data about a plant stem process, draw the correct conclusion regarding a function of a plant stem.

- A** conclusion misinterprets the characteristics and data
- B** conclusion has no basis in the provided characteristics and data
- C** correct, a function of a plant stem
- D** conclusion has no basis in the provided characteristics and data

- 2 (F1, F3, F5, F7) L.OL.04.16** Determine that animals require air, water, light, and a source of energy and building materials for growth and repair.

Given a table of data which compares the number of similar animals observed during different seasons of the year when temperatures vary greatly, select the reason that best explains the difference in the number of animal counts.

- A** a reason not supported by the season characteristics or the animal counts
- B** a reason not supported by the season characteristics or the animal counts
- C** correct, the animal count difference is supported by the availability of resources by season
- D** a reason that uses a fact not implied by season, nor agrees with the with the animal count numbers.

- 2 (F2, F4, F6) L.OL.02.22** Describe the life cycle of familiar flowering plants including the following stages: seed, plant, flower, and fruit.

Given four distinct drawings of the various growth stages of a familiar plant, identify a specifically named stage.

- A** incorrect stage
- B** incorrect stage
- C** incorrect stage
- D** correct, the stage in growth specified for identification

- 3 L.OL.03.42** Classify animals on the basis of observable physical characteristics (backbone, skin, shell, limbs, scales).

Given two sets of three animal pictures by type, identify a physical characteristic that is common to one set of animals but not present in the other set of animals.

- A** correct, identifies the common characteristic
- B** a characteristic not common in either set of animals
- C** a characteristic not common in either set of animals
- D** a characteristic that exists in both set of animals, but not common in either set

- 4 S.IA.04.11** Summarize information from charts and graphs to answer scientific questions.

Given a bar chart with data on animal population size across 20-year intervals, predict the population size for the next future 20-year period, based on trend.

- A** population-size not supported by the data trend
- B** population-size not supported by the data trend
- C** population-size not supported by the data trend
- D** correct population-size based on the data trend

- 5 S.IP.04.11** Generate questions based on observations.

Based on an observation about the different shapes of the same body part between two animals, identify the appropriate research question regarding the observed differences in the animal feature.

- A** research question considers an animal characteristic not necessarily related to the observed body part
- B** correct, research question considers how the different shapes and sizes of the body part affect the function of the body part
- C** research question disregards the observed difference in the common body part
- D** research question disregards the observed difference in the common body part

- 6 (F1, F2, F6) S.IA.04.11** Summarize information from charts and graphs to answer scientific questions.

Given a chart of data regarding organism growth in relation to the presence or absence of a treatment variable, draw the correct conclusion regarding the effects of the treatment variable.

- A** conclusion about organism growth not reflected by the variability of the growth data
- B** conclusion about organism growth for which data are not provided
- C** correct, conclusion regarding how the treatment variable affects organism growth
- D** conclusion about organism growth not reflected by the variability of the growth data

- 6 (F3, F7) S.IA.04.11** Summarize information from charts and graphs to answer scientific questions.

Given a table of summary weather data by month, recognize the earliest and best month to carry out a task that is best done under specified weather conditions.

- A** month where the weather conditions range outside the best time to perform the task
- B** month where the weather conditions range outside the best time to perform the task
- C** correct, earliest month where the weather conditions satisfy the best recommended conditions for performing the task
- D** month that is not the earliest month for the weather conditions that best allow for performance of the task

- 6 (F4, F5) S.IA.04.11** Summarize information from charts and graphs to answer questions.

Given summary information in a bar graph, recognize a correct statement of conclusion based on the graph.

- A** fact not based on information provide by the graph
- B** conclusion not based on information provided in order to judge the results presented by the graph
- C** opinion that could be a another research inquiry based on the graph
- D** correct, conclusion based on the information provided by the graph

- 7 P.PM.04.16** Measure the weight (spring scale) and mass (balances in grams or kilograms) of objects.

Based on an illustrated use of a spring scale to measure to different objects, draw the correct conclusion regarding how the objects differ.

- A** incorrect conclusion for which a spring scale does not provide the measure
- B** incorrect conclusion for which a spring scale does not provide the measure
- C** correct, conclusion based on the measures illustrated for both objects
- D** incorrect conclusion for which a spring scale does not provide the measure

- 8 (F1, F3, F6, F7) P.PM.04.53** Identify objects that are good conductors or poor conductors of heat and electricity.

Given set of four properties which describe an inanimate material, select the type of material.

- A** material that cannot exhibit one of the four properties
- B** material that cannot exhibit one of the four properties
- C** material that cannot exhibit two of the four properties
- D** correct, material that can exhibit all four properties

- 8 (F2, F4, F5) P.PM.04.34** Demonstrate that magnetic objects are affected by the strength of the magnet and the distance away from the magnet.

Given pictures of two magnets indicating each magnet's strength, identify the best for a specified task.

- A** incorrect magnet through appropriate distance for demonstration of the magnet's force
- B** incorrect magnet and the wrong distance for demonstration of the magnet's force
- C** correct magnet and appropriate distance for demonstration of the magnet's force
- D** correct magnet however the wrong distance for demonstration of the correct magnet's force

- 9 P.PM.02.13** Measure the length of objects using rulers (centimeters) and meter sticks (meters).

Given an illustration where a scaled meter stick is used to measure an object, identify the measured value of the object's height.

- A** incorrect measure of the object's height
- B** incorrect measure of the object's height
- C** correct measure of the object's height
- D** incorrect measure of the object's height.

- 10 P.PM.02.12** Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).

From among seven common items arranged in pairs, identify which pair of objects would float and which pair of objects would sink in water.

- A** incorrect choice where one object sinks among the pair that is indicated to float
- B** incorrect choice where both objects sink among the pair that is indicated to float
- C** incorrect choice where both objects sink among the pair that is indicated to float
- D** correct, one pair floats and the other pair sinks

- 11 (F1, F3, F5, F7) P.PM.04.23** Compare and contrast the states (solids, liquids, gases) of matter.

Identify water by its name as it exists in the 3 separate states of matter.

- A** correct, names water as it exists as a solid, as a liquid, and as a gas
- B** selects one name for water as a solid, and two for it as a liquid
- C** selects three names for water as it exists in a liquid state
- D** selects two names for water as a solid, and one for it as a liquid

- 11 (F2, F4, F6) P.PM.02.12** Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).

Given a set of three familiar objects, identify the three properties common to all three objects.

- A** set of three properties where one property is absent for all three objects
- B** set of three properties where one property is absent for all three objects
- C** set of three properties where two properties are absent for all three objects
- D** set of three properties common across all three objects

- 12 P.PM.03.53** Explain how we need light to see objects; light from a source reflects off objects and enters our eyes.

Given 4 illustrations of a light source, an object, and a person, identify the illustration that correctly presents how light energy is used to see an object.

- A** incorrect illustration that does not account for the source of light energy
- B** incorrect illustration that indicates human eyes are the source of light energy
- C** incorrect illustration that indicates the reverse path of light energy; from eyes to object to light source
- D** correct, illustration that show light energy from a light source is reflected off the object and our eyes receive this reflected light energy

- 13 P.CM.04.11** Explain how matter can change from one state (liquid, solid, gas) to another and then back again. This may be caused by heating and cooling.

Identify why the amount of liquid, after time, is missing from the original amount of the liquid placed in a heat source.

- A** incorrect reason indicating the missing liquid occurs due to a change in state of the air around the liquid
- B** correct, reason where the heat source caused some of the liquid to change and escape as an invisible state of the matter
- C** incorrect reason indicating the liquid is decreased because the liquid reflected sunlight
- D** incorrect reason indicating the gas around the liquid caused the liquid to change from a solid to a liquid

- 14 P.FM.03.42** Identify changes in motion (direction change, speeding up, slowing down).

As described, an object breaks off and moves in different speed and direction from a group of objects continuing on course. Based on the description, recognize the correct change in direction and correct change in speed of the object relative to the group of objects.

- A** incorrect statement about the object's change in speed and direction relative to the group of objects
- B** correct statement regarding the object's change in speed and direction relative to the group of objects
- C** incorrect statement about the object's change in speed and direction relative to the group of objects
- D** incorrect statement about the object's change in speed and direction relative to the group of objects

- 15 S.IA.04.14** Develop research strategies and skills for information gathering and problem solving.

Given a mixture of two common, different substances of approximately the same grain size, identify the correct procedure to separate the two substances of the mixture.

- A** selects an incorrect procedure and tools to separate the two substances based on substance properties
- B** selects an incorrect procedure and tools to separate the two substances based on substance properties
- C** selects the correct procedure and tools to separate the two substances based on different properties between substances
- D** selects the correct tools but does not recognize the difference in properties of the substance, so the results anticipated will not be obtained.

- 16 E.SE.03.14** Recognize that rocks are made of minerals

From a list of four substances, select the type of substance which forms rocks.

- A** substance that is not a mineral
- B** correct mineral substance
- C** substance that is not a mineral
- D** substance that is not a mineral

- 17 (F1, F2, F3, F4) E.FE.02.13** Describe the properties (visible, flowing, melting, dew) of water as a liquid (lakes, rivers, streams, oceans).

From a list of four properties of matter, identify the correct pair of properties that apply to liquid water.

- A** selects two properties that are not properties of liquid water
- B** selects two properties where one is not a property of liquid water
- C** selects two properties where one is not a property of liquid water
- D** correct, selects two properties of liquid water

- 17 (F5, F6, F7) E.FE.02.11** Identify water sources (wells, springs, lakes, rivers, oceans).

Recognize the most likely path for water from a specified source to specified destination.

- A** incorrect path for water from specified source to specified destination
- B** incorrect path for water from specified source to specified destination
- C** incorrect path for water from specified source to specified destination
- D** correct, most likely path for water from a specified source to a specified destination

- 18 E.SE.03.31** Identify Earth materials used to construct common objects (for example bricks, buildings, roads, glass).

Given an Earth material, identify the substance produced using the material.

- A** naturally occurring substance that does not use the given Earth material
- B** naturally occurring substance that does not use the given Earth material
- C** correct, man-made substance for which the Earth material is an essential component
- D** man-made substance that does not use the Earth material for production

- 19 E.ES.03.44** Recognize that paper, metal, glass, and some plastics can be recycled.

Given a list of four human conservation activities, identify which activity is a recycling activity.

- A** reuse conservation activity
- B** reuse conservation activity
- C** reuse conservation activity
- D** correct, an activity that recycles a resource for yet-to-be-determined later use

- 20 (F1) E.ST.04.21** Describe the orbit of Earth around the Sun as it defines a year.

From a list of four fact statements regarding the orbits or motion of the Earth, moon, and Sun, identify the correct statement in terms of time.

- A** statement about the orbit of the Sun around the moon
- B** correct, statement about the orbit of the Earth around the Sun
- C** statement about the orbit of the Earth around the moon
- D** statement about the orbit of the moon around the Sun

- 20 (F2, F5, F6) E.ST.04.32** Compare and contrast life forms found in fossils and organisms that exist today.

Given three pictures of three different animals, similar in body characteristics (e.g., shape and size), though two are now extinct, explain why a specified characteristic differs across the animals in quality and amount.

- A** correct, selects the best statement to explain why the characteristic differed across the three animals
- B** a conclusion that has no basis due to the difference in the characteristic
- C** an explanation which addresses an environmental condition not served by the function of the characteristic
- D** a true statement, however the statement does not offer an explanation for the difference

- 20 (F3, F4) E.ST.04.24** Explain how the visible shape of the moon follows a predictable cycle which takes approximately one month.

Given a picture that illustrates the phase cycle of the moon, select the time period required for this phase cycle to complete.

- A** time period that is less than the time needed
- B** time period that is less than the time needed
- C** correct, the amount of time to complete the cycle
- D** time period that is greater than the time needed

- 20 (F7) E.ST.04.32** Compare and contrast life forms found in fossils and organisms that exist today.

Given the very similar appearance of a plant fossil and the same part of an organism found today, select the appropriate conclusion.

- A** conclusion on how the fossil is found that is not relevant to the fossil and organism similarity
- B** conclusion on how the fossil is found that is not relevant to the fossil and organism similarity
- C** correct, the appropriate conclusion about the plants existence
- D** conclusion that reflects wrong understanding of fossil evidence

- 21 E.ES.03.52** Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources).

Given a land management situation regarding removal of excess water, identify the best practice to remove the excess water.

- A** land management activity that will enable more excess water accumulation
- B** land management activity which will enable more excess water accumulation
- C** correct, the best land management practice to remove excess water and prevent excess accumulation
- D** land management practice that will merely move, if successful, the excess water from one location to another

- 22 S.IP.04.13** Plan and conduct simple and fair investigations.

Given a list of four research activities, identify the best activity that will substantiate a previously made scientific conclusion.

- A** research activity that will only lead to hypotheses from which to study the conclusion
- B** research activity that will only process or reprocess the existing bases for the scientific conclusion
- C** research activity that only engenders plans for future research
- D** correct, a the research that processes additional data to further support or detract from the bases for the scientific conclusion

- 23 S.RS.04.16** Identify technology used in everyday life.

Among four sources of evidence, identify the best technology used to confirm a specified statement about the shape of a planet.

- A** selects ancient records as a reference to confirm a modern fact
- B** correct, selects the best source of evidence based on technology used to gather data while in space
- C** selects a source of incomplete evidence from an Earth location
- D** selects a source of incomplete evidence from an Earth location

- 24 (F1) S.IP.04.14** Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).

Given a list of four scientific tools, identify the two tools most useful to measure a specific human performance task.

- A** selects a pair of tools among which both would not have the most accurate application to measure the task
- B** selects a pair of tools among which one tool would not have the most accurate application to measure the task
- C** selects a pair of tools among which one tool would not have the most accurate application to measure the task
- D** correctly selects the pair of tools that would provide the most accurate measure data of the performance task

- 24 (F2) S.IP.04.14** Manipulate simple tools that aid observation and data collection (for example; hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).

Given four statements of which tool to use for a science observation/measurement, identify the statement that correctly uses the tool to make the observation/measurement.

- A** selects the statement where the tool does not provide the intended measure
- B** selects a tool that can perform the science task, however it is not an appropriate tool to use to carry out the task
- C** correct, selects the appropriate tool to carry out the specified scientific observation
- D** selects the statement where the tool does not provide the intended measure

- 24 (F3, F6) S.IP.04.14** Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).

Recognize the step in the scientific process that occurs when use of scientific tool provides data.

- A** scientific process step that is based on a summary of collected data or theory
- B** scientific process step that might use data, but not collect data
- C** scientific process step that is could be based on past, even non-scientific data, but does not collect data
- D** correct, the scientific process step that describes systematic data collection

- 24 (F4) S.IP.04.16** Construct simple charts and graphs from data and observations.

Given a table of data, recognize the graph that accurately presents specified data from the table.

- A** correct, graph that accurately represents the data by category
- B** graph misrepresents the data by category
- C** graph misrepresents the data by category
- D** graph misrepresents the data by category

- 24 (F5) S.IP.04.15** Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.

Given a body feature of a familiar animal, select the unit used to measure a quality of the feature using a specified measurement standard.

- A** incorrect unit of measurement
- B** incorrect unit of measurement
- C** incorrect unit of measurement
- D** the correct unit of measurement

- 24 (F7) S.IP.04.16** Construct simple charts and graphs from data and observations.

Given a set of four charts, select the chart that best represents a list of observation counts by type of living thing, across category and subcategory of the living things.

- A** chart displays correct counts but incorrectly categorizes the types of living things by subcategory
- B** chart mixes category of living things with subcategories and inserts count data in the space for living thing subcategory
- C** chart mixes category of living things with subcategories and inserts count data in the space for living thing subcategory
- D** correct, chart best arranges the different type of living things by category and subcategory with accurate count data

- 25 S.RS.04.16** Identify technology used in everyday life.

Among a list of four scientific tools or devices, identify the best tool for preparation of a graph.

- A** tool that can prepare a picture of a graph, not prepare the graph, per se
- B** correct, the tool that can process entered data and illustrate the data in many graph forms
- C** tool that can present a picture or video of a graph, not prepare the graph, per se
- D** tool that can present a picture or video of a graph, not prepare the graph, per se

- 26 S.RS.04.11** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.

Given a list of four different methods of presentation to a group, select the best practice to demonstrate a specified model of planetary rotation.

- A** practice that only presents an audio description of planetary rotation
- B** practice that only presents a two-dimensional illustration of planetary rotation
- C** correct, the best practice, which provides three-dimensional model of planetary rotation
- D** presentation which does not address the subject of interest

- 27 E.FE.02.12** Identify household uses of water (drinking, cleaning, food preparation).

From a list of four water uses, identify which of the four is a household use of water.

- A** correct, the household use of water
- B** a community use of water supported by many households
- C** a utility business use of water that serves many household customers
- D** a private business use of water for products sold to customers

- 28 (F1, F5, F6, F7) E.SE.03.13** Recognize and describe different types of Earth materials (minerals, rock, clay, boulder, gravel, sand, soil).

From a list of four reasons, identify the reason why a specific Earth material is the best to used for a specified purpose.

- A** a reason that does not apply to the Earth material or the basis for its specified use
- B** a reason that does not apply to the Earth material or the basis for its specified use
- C** a reason that does not apply to the Earth material or the basis for its specified use
- D** correct, the reason for use of the specific Earth material for the specified use

- 28 (F2, F3, F4) E.SE.03.22** Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).

Given a picture of a land surface with some surface features labeled, recognize the causes for the formation of a land-surface feature in a designated section of the picture.

- A** incorrect cause for the land surface feature
- B** correct, the cause for the land surface feature
- C** incorrect cause for the land surface feature
- D** incorrect cause for the land surface feature

- 29 E.FE.02.14** Describe the properties (hard, visible, freezing, ice) of water as a solid (ice, snow, iceberg, sleet, hail).

Given four statements, select the statement that best describes ice and snow.

- A** incorrect statement regarding the state of matter of ice
- B** the correct statement regarding the state of matter of both ice and snow
- C** incorrect statement regarding the state of matter of ice
- D** incorrect statement regarding the state of matter of both ice and snow

- 30 E.ST.04.12** Compare and contrast the characteristics of the Sun, moon, and Earth, including relative distances and abilities to support life.

A Venn diagram shows features common to Earth and the moon. Identify, from a list of four other features, that feature also common to both Earth and the moon.

- A** correct, a feature that is common for both Earth and the moon
- B** a feature that only applies to Earth
- C** a feature that only applies to Earth
- D** a feature that only applies to Earth

- 31 E.ES.03.51** Describe the ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).

Given a list of four pairs of natural resource materials, identify the pair of resources most used as materials to build a specified public infrastructure.

- A** a pair of natural-resource material where only one material is readily used to build the specified public infrastructure
- B** a pair of natural-resource materials that historically were used to serve the same purpose as the specified infrastructure, but are no longer used to build this infrastructure
- C** a pair of natural resources where one material was used in prior years, but no longer today and the other natural resource has no application for building the specified infrastructure
- D** correct, a pair of natural resources where both are readily used to build the specified infrastructure

- 32 E.ST.04.31** Explain how fossils provide evidence of the history of Earth.

Identify the relative age of fossils based on finding these fossils in a specified layer of rock.

- A** correct, the relative age based on the specified fossil location in layered rock
- B** the incorrect relative age based on the specified fossil location in layered rock
- C** a conclusion about the type of animal fossil that might or might not be true
- D** the incorrect relative age by not using the rock layer location evidence

- 33 S.RS.04.14** Use data/samples as evidence to separate fact from fiction.

Given a table of monthly average temperatures in Detroit, identify the correct statement of opinion rather than fact based on the information in the table.

- A** a statement of fact
- B** a statement of fact
- C** correct, the statement of opinion
- D** a statement of fact

- 34 S.IA.04.12** Share ideas about science through purposeful conversation in collaborative groups.

Given four different methods by which to share and learn the results of all groups who ran the same lab task, identify the best method of practice.

- A** a practice that does not share all groups' lab results with each lab group
- B** correct, the best practice where all groups share their own lab results with every other group
- C** a practice that only shares some of the groups' results with other groups
- D** a practice where only 1 group presents its lab results

- 35 P.FM.03.38** Demonstrate when an object does not move in response to a force, it is because another force is acting on it.

Recognize the correct reason for why an object does not move though an observed effort (i.e., force) is made to move it.

- A** incorrect reason that no force applied to the object
- B** correct, another force is concurrently being applied to the object
- C** incorrect reason that gravity has no effect on the box
- D** incorrect reason that gravity increases as the force is applied to the object

- 36 P.FM.03.35** Describe how a push or a pull is a force.

Given six items, each made of common substance, select the pair of objects attracted by a magnet.

- A** a pair of objects where neither is attracted to a magnet
- B** a pair of objects where only one is attracted to a magnet
- C** correct, the pair of objects where each is attracted to a magnet
- D** a pair of objects where neither is attracted to a magnet

- 37 P.FM.03.43** Calculate the speed of an object based on the distance it travels divided by the amount of time it took to travel the distance.

An object moved a given distance in a specified time. Calculate the object's speed.

- A** incorrect speed; uses distance value as the speed value
- B** incorrect speed, subtracts the time value from the distance value
- C** incorrect speed, uses the time value as the speed value
- D** correctly calculates the speed of the object

- 38 P.EN.04.51** Explain how electrical energy is transferred and changed through the use of a simple circuit.

Given six components used in electrical circuits, select the set of three that are needed to prepare a functional closed circuit.

- A** selects a set of three components that does not include a power source
- B** selects a set of three components that does not include material to carry the current
- C** correct, selects the set of three components that can form a complete functional closed circuit
- D** selects a set of three components that does not include material to carry the current

- 39 P.EN.04.41** Demonstrate how temperature can be increased in a substance by adding energy.

Describe what will happen to the temperature of the cooler object as soon as a warmer object is placed inside and in contact with the cooler object.

- A** incorrect description of how the temperature of the cooler object will change
- B** incorrect description of how the temperature of the cooler object will change
- C** incorrect description of how the temperature of the cooler object will change
- D** correct, description of how the temperature of the cooler object will change due to heat transfer

- 40 P.EN.03.11** Identify light and sound as forms of energy.

Describe lightning and thunder, using the choices provided.

- A** description of lightning and thunder as forms of the same type of energy
- B** description of lightning and thunder as forms of the same type of energy
- C** correct, description of lightning and thunder as forms of energy
- D** description of lightning and thunder as forms of the same type of energy

- 41 P.EN.04.52** Create a simple working electromagnet and explain the conditions necessary to make the electromagnet.

From a list of six common objects of known material, select the set of three objects needed to make an electromagnet.

- A** selects the correct set of three objects that can be used to make an electromagnet
- B** selects an incorrect set of three objects, of which one object cannot be used to make an electromagnet
- C** selects an incorrect set of three objects, of which one object cannot be used to make an electromagnet
- D** selects an incorrect set of three objects, of which one object cannot be used to make an electromagnet

- 42 P.EN.03.32** Distinguish the effect of fast or slow vibrations on pitch.

Describe the difference in pitch between the strings on a guitar.

- A** incorrect description regarding string type and pitch
- B** incorrect description regarding string type and pitch
- C** correct, recognizes the relationship between string type and pitch
- D** incorrect relationship between string type and pitch

- 43 (F1, F4, F7) S.RS.04.15** Use evidence when communicating scientific ideas.

Consider and identify a first type of evidence that demonstrates a specified effect from a change in an ecosystem.

- A** correct, one of the first effects from the specified change in the ecosystem
- B** an effect unlikely to happen after the specified change
- C** an effect unlikely to happen after the specified change
- D** an effect that would not be an initial effect after the specified change

- 43 (F2, F5) S.RS.04.14** Use data/samples as evidence to separate fact from opinion.

Given a set of observations, identify an opinion that can be made based on the observations.

- A** an opinion that is contrary to the observations
- B** an opinion that has no basis from the observations made
- C** correct, the opinion that is supported by the set of observations
- D** fact, not an opinion

- 43 (F3, F6) S.RS.04.14** Use data/samples as evidence to separate fact from opinion.

Given a described lab exercise and a table of data based on the exercise, recognize the best source of evidence that supports the conclusion from the lab work.

- A** correct, best source of evidence used to support the conclusion from the lab
- B** process from the lab exercise unrelated to the conclusion of the lab work
- C** step in the scientific process that if it alone supported the conclusion, the lab would not be necessary for further evidence
- D** set of opinions as the best support for the conclusion of the lab exercise

- 44 S.IP.04.12** Generate questions based on observations.

Identify the research question that would best apply to a specified research topic of interest.

- A** a question that is off topic regarding the specified research topic
- B** a question that is off topic regarding the specified research topic
- C** a question that is off topic regarding the specified research topic
- D** correct, the question that would form a relevant, testable hypothesis regarding the specified research topic

- 45 L.EC.04.21** Explain how environmental changes can produce a change in the food web.

Based on a brief description about an organism and a display of the organism within a food web, identify the most harmful threat to the organism's survival.

- A** statement that does not reasonably threaten the organism's survival
- B** statement that would promote the organism's survival
- C** statement that would have no threat to the organism's survival
- D** correct, selects the statement where the organism's survival would be threatened by a specified environmental change

- 46 L.EV.03.12** Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, color, body covers).

Given one function of a specified animal's body part, identify another function for which the animal can use the same body part.

- A** a survival function not offered by use of this body part
- B** correct, an additional survival function for which the animal can use the specified body part
- C** a survival function not offered by use of this body part
- D** a behavior not exhibited by the type of animal specified nor a possible function of the body part

- 47 (F1, F3, F5, F7) P.EV.03.12** Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, color, body covers).

Identify the type of enhanced animal characteristic that would best provide for the animal to carry out a specified survival behavior.

- A** selects an enhanced characteristic not related to the specified animal behavior
- B** selects an enhanced characteristic not related to the specified animal behavior
- C** correct, an enhanced characteristic that would facilitate the specified animal survival behavior
- D** selects an enhanced characteristic not related to the specified animal behavior

- 47 (F2, F4, F6) L.EV.03.12** Relate characteristics and functions of observable body parts to the ability to live in their environment (for example: sharp teeth, claws, color, body covers).

Given a specified animal characteristic, recognize the survival value this characteristic has for the animal.

- A** a survival value that is not a function of the characteristic
- B** a survival value that is not a function of the characteristic
- C** correct, the survival value the animal has from this characteristic
- D** a species survival value not related to this animal characteristic

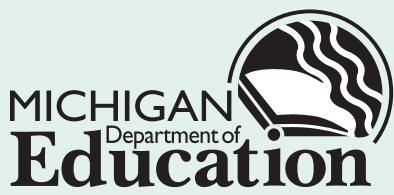
- 48 L.HE.02.13** Identify characteristics of plants (for example: leaf shape, flower type, color, size) that are passed on from parents to young.

Identify the best method to predict an attribute of a young animal body feature before this feature can be directly observed.

- A** selects the use of an observable feature of the young animal though the attribute of this feature is not related to the feature of interest
- B** correct, selects the source of observable data that would provide the best prediction of the attribute of the animal's feature
- C** selects the use of an observable feature of a similar animal where this feature has no attribute relationship to the feature of interest
- D** selects the use of an observable feature of the young animal though the attribute of this feature is not related to the feature of interest

5th

8th



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